From:	PETERSON Jenn L
To:	Eric_Blischke/R10/USEPA/US@EPA
Cc:	ANDERSON Jim M
Subject:	J. Peterson and M. Poulsen comments
Date:	03/17/2008 04:38 PM

Eric,

Here are some comments on mostly your comments on Section 10. I thought your comments were good, and provide a basis for moving forward. I was able to review a little of section 10 itself, but not all - I mostly concentrated on EPA comments. However, I will continue to review in order to be prepared as we go through the process. Mike provided comments and I have those listed below mine, in different script.

-Jennifer

Section 10.1.1.1.1: Approach for Surface Water: I agree with the approach outlined in EPA's comments to develop PRGs based on "readily available information" and human health and ecological criteria. It does appear that the LWG may want to define a water PRG based on different criteria including the results of a site-specific food web model specifically for bioaccumulatives. However, I think we should concentrate on sediment as the primary bioaccumulation pathway as the main driver for determining biota tissue concentrations and as making the biggest difference when remediated. Bioaccumulation in fish is driven by their diet - this has been shown by Gobas and others (fugacity). Benthic and other prey concentrations for fish are driven by sediment (also a fugacity phenomenon - bottom sediments have a higher capacity and a low fugacity (less ability to hold on to the chemical)). It seems like we should be concentrating on the contribution of sediment since this is the biggest driver and where we will realize the biggest change in fish concentrations with reduced concentration (and mass). Setting the water concentration to true background (e.g. RM 15) and running the food web model with a focus on sediment seems like the best scenario to me for determining PRGs.

The last paragraph states "however, the food web model is limited because upstream surface water or upstream sediment levels alone are sufficient to result in elevated levels of COCs in fish tissue". Are you saying that for setting risk based PRGs it isn't appropriate to consider upstream sources (and risk?). Should we just say this instead?   I am also a little confused about how we are going to develop a bioaccumulation based water PRG. Would this be a management number and not a risk based number?

Section 10.1.1.1.3, iPRGs for Sediments: The LWG language indicates that BSAFs do not consider water and other sources. BSAFs as calculated empirically do account for all inputs that resulted in that fish concentration, including water. They are the simplest form of a food web model, and should be considered in developing feasible PRGs. I would add "or BSAF model" to the second sentence in the first paragraph. Certainly a BSAF approach should be explored along with the food web model, even for PCBs and DDTs. It is likely we may find a better correlation between tissue and sediment at more localized scales. The big question for me using a site wide food web model is whether or not the SWAC or other average concentration in sediment we come up with to correlate to fish tissue is an accurate assessment of reality or not. Average site-wide sediment concentrations used in a model to predict average site wide tissue concentrations may match up o.k. (maybe) to empirical averages of fish tissue collected at the site. However, from this a "calibrated" model is developed and used to back calculate an "average sediment concentration". How is this applied? Does it match with the reality of the fish exposure? Due to the large scale used to predict these fish / sediment interactions and the heterogeneity of source areas (and mass) in the harbor I think this has the biggest potential for development of PRGs that don't achieve the goal (esp. in localized areas).

Section 10.1.1.2, iAOPCs: It would be good if comments on this section matched with the exposure assessment in the ecological problem formulation. Most receptors were identified as having an exposure area smaller than the site.

It is mentioned elsewhere, but in addition to concentration it seems like mass has place in iAOPC identification as well as the need to examine subsurface sediments.

Area Specific: A moving SWAC is described here for smallmouth bass. I am assuming this is describing multiple forward calculations of the fish dietary model for AOPC delineation. The exposure portion of the problem formulation describes the use of ATCs for identifying AOPCs. What would the primary objective of the moving SWAC be?

Location Specific: The spatial component of benthic risk is a little unclear. I agree with the need to have more lines of evidence when using predicted risk models (PRGs) to benthic tissue or toxicity in evaluating point-by-point predictions of risk. However, I think the uncertainty here is that we are unsure the predictions are accurately representing reality, and not that we had defined an appropriate "population level" assessment area to trigger the identification of an AOPC.   Is this correct? For example, if we had a crayfish or clam composite that empirically measured tissue concentrations indicating risk we would consider that in need of AOPC identification, regardless of area.

Section 10.1.2.1, Human Health iPRGs: I would take out the last sentence on Page 7, but this may have been discussed at the TCT meeting.

Section 10.1.3.1, Ecological PRGs: I would remove the section in quotes about ecological significance. The issue of ecological significance is present regardless of whether or not we use empirical toxicity test results or we use a model to predict toxicity. The bigger issue is that we don't know how mortality or reduced growth in the lab correlates to changes in populations in the field (ecological significance). I don't think this is an issue we want to get into or define unless there is a proposal to do more benthic diversity studies.

Section 10.1.3.2.1, Smaller than Site-Wide Exposure Areas: You may want to consider adding or referring to the specificity in the problem formulation piece that overlays the contaminant specific considerations (e.g. PAHs and metals use ATC for sculpin and bass, etc). l

Additional comments on Portland Harbor Round 2 Report Section 10 from Mike Poulsen

EPA comment on Fish Consumption. It would be better to make the comparison of values using consistent units, such as 0.050 ug/kg compared with regional anthropogenic background of 2 ug/kg.

Section 10.1.2.1. Unless EPA wants to make a decision shortly about how to address potential risks from consuming breast milk, we could wait until we provide direction to the LWG on assessing breast feeding risks, and then direct them on how to use the risk information to develop PRGs.

The last sentence in the HH iPRGs section says that the LWG should set the surface water concentration to zero, or alternatively use a probabilistic approach. These are separate concepts and should not be linked in the sentence.

In EPA's comment, "visa versa" should be "vice versa".

Section 10.1.2.2.5 Shellfish, 4th paragraph. The statement "Developed on sediment organic carbon basis (TOC normalized)" is repeated in EPA's comment.

Page 10-16. The statement that "BSAF does not account for water or related food web contributions" is incorrect. A BSAF is an empirical value that relates sediment concentrations to biota concentrations, and can include all major pathways of bioaccumulation.

Page 10-18. The statement that highly conservative exposure assumptions are not appropriate for iPRGs should be removed. The risk assessment uses reasonable maximum exposure, not highly conservative exposure, to characterize risk. Oregon rules state that acceptable risk levels are determined using upper-bound exposure assumptions. It is appropriate to develop PRGs using the same assumptions.

Page 10-21. "FPM does not allow calculation of PRGs" Really? I thought the purpose was to develop screening levels that could then be used as PRGs.

Page 10-28. PCB background is slightly below iPRGs!? Perhaps if you don't base the iPRGs on a 10^{-6} acceptable risk level. The subsistence fisher DEQ screening level value for PCBs is 0.048 ug/kg. Anthropogenic regional background is likely around 4 ug/kg.